

JAMES KENNEDY: Ok, Good Morning. I was just told that we are ready to get started. As many of you know, I'm Jim Kennedy, the Director here and it is my pleasure to kick off this town hall meeting to give you an opportunity to get to know NASA's eleventh administrator, Mike Griffin. Before I introduce Mike, I would like to express pride and support for the LSP team, the Boeing team, the integrated team that successfully launched NOAA-N this morning at 6:22 our time. After four attempts last week, today was the charm. And to our integrated contractor and government team so beautifully working the Shuttle and its Return to Flight activity. As we speak, the tanking test, which began early this morning, is indicating that all systems are looking beautiful. So, our congratulations to the Shuttle people as well. I learned in the press conference that we, I use the word "we" loosely, I my opportunity to say a comment up front and all I said is "I'm here with him." Missed my golden opportunity because I never had another chance to speak. I realize you are here to get to know the administrator and I am proud that you have that opportunity. It is my pleasure indeed to introduce to you Mike Griffin. Mike is a man that I have known for ten years. As you read his bio, from that bio you can certainly extract the fact that he is a well-educated man. That he has a beautiful diversity of experiences. What you can't begin to get from a bio and what we have seen so beautifully for the last 36 hours is this is a man that knows what we do. This is a man that understands our business that cares about us. Mike is a man with a vision for this agency and there is no question, no question in anybody's mind, he is the person to lead this agency as we begin the real first steps of exploring this universe of ours. So, I introduce to you our administrator, Mike Griffin.

GRIFFIN: Thank you. Well, this was intended to be your time and I want to take up as little of it as I can with introductory speeches and so I won't make a big one. I will say it's very enjoyable to be here. There are no more enjoyable places for me. I was asked in my press conference that I just did what my impression was as I went through KSC on my official center tour and my comment was, "Well, I've been down here for at least six launch campaigns that I can think of and lived here for months at a time and so my impression is the same as it always is of talented dedicated people who know what they are about and who are doing it and that impression hasn't changed, it's only been reinforced." So, it truly is a pleasure to be here. I like it a lot. The bio thing can be summarized best by the way that, I think it was MSNBC that put it on one of the internet summaries, "President Bush Nominates King Nerd for NASA." If that weren't a real quote it wouldn't be so funny. So, what can I talk with you about today? The questions are yours. I'll do the best I can with answers.

Audience Member:

GRIFFIN: The question was that there has been a lot said, much of it by me, on shrinking the gap between retiring the Shuttle and bringing online the CEV. Could I comment? Sure. The President and the executive branch have decided individually and collectively that we are retiring the Shuttle by 2010. By the time we retire it, it will have been in service almost 30 years. The vehicle will have served us as faithfully as it has been able and the teams who launched it will have served us above and beyond the definition of faithfully. But it will be time to move on. NASA's original plans focused on bringing on

a replacement vehicle for getting people into orbit, and most crucially, taking them onto the moon and Mars and other destinations. But, there was a gap. You know, a budget driven gap that would allow us to have brought it online in 2014 and maybe not then. When I saw those plans, at least in my head, I considered them to be unacceptable. I just got done saying in the press conference, I'll say it again here. I was in my late 20's, early 30's, when we went through that exercise at the end of Saturn/Apollo before we brought on Shuttle and the question for me was not so much ceasing the Apollo explorations of the moon. I was not in favor of that as a young engineer, but I could understand why someone would do it if you wanted to get on with doing other things. But, getting rid of the transportation infrastructure that we had created at great cost and sacrifice seemed not to me to be a wise thing. I don't want to do that again. What we are retiring is the orbiter. There are a number other components of the Shuttle stack that will be very useful going forward. I plan to utilize those. And we need to have a new vehicle brought online without a four or five year gap. In order to do that, I've been looking very closely at the NASA budget and looking for any freedom that we have without cutting into science or aeronautics programs that money can be applied to accelerating CEV development. I've also been looking at different program management styles. We have a certain program management plan. Wasn't the only possible plan. You can construct other different plans to narrow that gap. We're trying to construct one to narrow that gap. It's hard to be more specific than that for you right now because we are just getting started. But, that's the goal I have. If I can turn 2014 into 2010 or 2011, I'll think I have done well. That's the effort.

QUESTION: Good morning Mr. Griffin and thank you for coming to KSC. My question is relative to exploration and KSC's role. You've been quoted in print saying that Johnson Space Center has the team and the experience that you would expect to use in leading the development, design, and delivery of human rated spacecraft. Similarly, you've been quoted in a statement that Marshall would be expected to field the team to develop, design, and deliver human rated launch vehicles and engines and that Stennis would provide the engine test expertise and capability. Do you expect KSC to have a similar role in leading the development, design, and build for the launch and landing site facilities, systems, and GSE?

GRIFFIN: The comment you are quoting from were, I believe, in connection with question about, you know, historic core competencies at the different NASA centers. And of course, KSC is our launch center. So, the things that properly go with assembling and launching our systems, assembling, integrating, and launching our systems are KSC's core strength. I guess I am kind of missing your question. I certainly have no plans to take that anywhere else, if anything to reinforce it. I think in the past, I was in the Space Station program for awhile, in the past there were occasions where we made mistakes. I was talking yesterday about this with Tip Talone as a matter of fact. At one point in the program we were adopting, it was called a ship and shoot philosophy. We'd bring stuff down here to the Cape, stack it up on a vehicle and go without, you know, taking care to do the element to element integration to make sure everything was going to work out. That's an example of the kind of expertise a launch operator brings to the table. The design and development engineers often miss. I come from an ops background myself as

a young lad and I'm quite sensitive to that issue. So, we are going to try not to make that mistake as we move forward for design and developing exploration hardware. I think you will not be unhappy with KSC's role going forward. And by the way, it's Mike.

Thanks. Yes. Questions.

QUESTION: In the President's...

GRIFFIN: I don't require as much formality as I'm offered.

QUESTION: In the President's vision statement he basically said the moon and beyond and that's a US program and CEV and the Shuttle are also US Space Program. Is there, I've read, I believe in the press, and I believe there's been some news about it, as far as an international partnership to go beyond when you talk about further space exploration. Do you see any plans, anything international, in this program as far as to the moon and beyond partnerships being involved there.

GRIFFIN: The President made a 998 word speech and one of my efforts is to get people to read the whole speech. Clearly delineated in there were a couple of phrases about our willingness and, in fact, desire to do this with international partners. We won't be back on the moon for a decade. Our first step in the vision is returning the Shuttle to flight. Next step is assembling the Station, finishing the assembly of the Station. The step after that is to bring the CEV online. When we have those things under our belt or substantially under our belt we can get started building the exploration hardware. Right

now we are going to be architecting that hardware. When we got in our heads the picture of the system that we want to build, and that's got to be the first part of it, we can then look to where international contributions, or for that matter, contributions from commercial industry can help augment the plan. There has to be a core plan. That needs to be US government plan. But there is plenty of room and there will be plenty of room for other participation. We are going to design it to make that possibility so. At the same time we can't make partners be interested in working with us. We have to craft the kind of plan and have the kind of approachability that makes people want to be part of it and that will be my goal.

QUESTION:... so it's adaptable so that all the same partners can contribute and if it's a single design by one entity, ourselves, and I guess that's what I was kind of looking at. If it was going to be involved would it be early on or way out in the future. It seems it's going to be more later than sooner is what I'm saying.

GRIFFIN: It is later rather than sooner. I can't design or have a team design an architecture to include partners when we don't have them there yet. We don't know exactly what we're going to be doing. There needs to be a central core of US capability that does not have other entities in the critical path and that's the guiding philosophy. And then on that Christmas tree we can hang a lot of ornaments and it will look a lot better. But, there needs to be a central capability, a US strategic capability to operate in space, that does not depend on others.

QUESTION: Yeah, could you say a little bit about what your impression of NASA's culture is and your take with some of the ideas associated with changing culture and value systems and things like that in NASA?

GRIFFIN: I can, yes. Did you want me to? In one way or another, at one center or another, this is my fourth time back with NASA. I've also been a customer of NASA's as a DoD person. I spent 10 years or more in DoD space. I've been a supplier to NASA from contractors and laboratories so I think I know the agency pretty well. We're not perfect. Nobody is. We made some mistakes on Colombia. Some of those mistakes were eerily similar to mistakes that we made on Challenger. People have recognized that. NASA had recognized that. We are trying to fix it. We are fixing it. I think I've said over and over, I really believe this, that the core parts of, look at it from the negative side being the mistakes or the positive side being what we want it to be, what we are looking for doesn't go a lot beyond what you are taught in kindergarten. Listen to other people. Consider their opinions carefully. Make them feel welcome and included not pushed away and dismissed. If we do that then we are operating the necessary way. I've talked some in the past and in other venues about the kind of culture you evolve should fit the task you have at hand. If you are leading a team of firefighters into a burning building to rescue occupants and save property, there isn't time for debate and discussion even if the debate and the discussion would yield a better plan than the plan you were going in with, the time required to execute that would overwhelm any other advantages. So, you don't do it. If you are in a military combat situation for the same point. A police operation, the same point. Emergency medical response, flight control of a spacecraft having a

spacecraft emergency, command of an aircraft. I've had 3 engines failures. I wasn't doing a lot of debating while I was thinking about what I was going to do. You know, or else I wouldn't be here to talk about it. There are times when there is not time for debate and discussion and careful consideration. You better know what you are doing going in and if you don't than you deal with the lessons learned later on. Engineering development, the decisions surrounding operations and decisions surrounding when is it time to fly and when is it time to stand down are not examples are not examples of human activities where that kind of command oriented structure is necessary or appropriate. IN engineering decisions, technical decisions of that nature, we need to have due regard to make sure that we are hearing all the opinions. We need to be conscious of our human frailties. It's fine to have an opinion. I mean, if you are sitting around the table with a bunch of other people and you have no opinion about the subject at hand you probably don't belong there. You don't know enough to be contributing. But we need to be capable of changing our opinions when new facts are presented and we need to be open to the presentation of new facts. Those simple things will craft for us the kind of culture that we want on our engineering side and it will all be just fine. I think you get my point and I think if I say anymore it's just going to be redundant. You know, our culture is not so terribly broken. We can do things.

QUESTION: Mike, I was following up on the question you were asked earlier about the role of Kennedy Space Center here and you talked about the Space Station philosophy early in the program of the ship and shoot and the Kennedy people did not believe in that philosophy when it came up in the late 80's, early 90's, and had the foresight to help

build and develop and sell the capability that we have here today that's doing the job it's doing. And I guess that's part of my thrust of the question is do you see us having that role of doing that thinking beforehand and leading the development and design of the infrastructure that's required here to do the exploration program?

GRIFFIN: That question is too specific for me to be able to answer it. There's an important role that is clearly in the Space Station design phase, or at least the most recent design phase, in which I participated in the early 90's. I mentioned the ship and shoot thing because that was on the table at the time and because Tip was yelling at me about it yesterday and I was pointing out to him that I was one of the voices saying this was stupid. You know. Go flog someone else. So, you know, of course I enjoyed that interchange but the details of... you're talking really about the system engineering and integration role as you move beyond design and development and look toward integration and operations. And exactly where that fits and how that gets put together is something we are discussing and will be discussing for probable a good number of months. What I want to come out of it is one of the possible right answers and I don't hold the view that there is any single right answer on most subjects. I think we get a good answer if we have everybody playing on the team and Kennedy's own Terry McKlusky was Jim's nominee to be part of that team. And then, of course, Terry reaches back for other support as well. So, I tend to have the view that if we can get the right people doing the up front thinking on how we are going to go about exploration that a set of right answers will emerge. And of course, we are changing the reporting structure of NASA, and I announced this actually on my first day on the job, center directors and AA's will be

reporting equally to Code A. So, if there is a view that we are not doing the right thing, Jim can pick up the phone and dial 1-800-MIKE and we can talk about it. So, the reason I am changing the structure is precisely to achieve that result. I want a balance between our institutional stake holders and our programmatic stake holders. More of a classic aerospace matrix if you will so that I am able to receive in the normal course of events the differing sets of opinions that we have to have to make the good decision. Does that make sense? What is it? Everybody over here shy or something?

KENNEDY: Yeah. Tip's on that side.

GRIFFIN: Pardon?

KENNEDY: Tip's on that side.

GRIFFIN: Oh, hey Tip. So nobody else will talk because he's over there.

Congratulations on your almost 40th anniversary with NASA, Tip. It's a real milestone.

One of the truly valuable people that we have and we need anti-aging serum real quick.

So, anyway, next question. Yes, sir?

QUESTION: Yes, Mike, it might be too soon to ask, but are we planning to use an L-point in going to the moon and if so are we going to be getting hardware roughly about the time we get a CEV or is that too soon to answer.

GRIFFIN: The first question about using an L-point rendezvous technique you mean?

That is too soon. I mean, that is one of the things folks are considering. It has pluses and minuses. If you go to an L-point you have, I'm sure everybody knows, if you go to an L-point you have a nice staging area for anytime access from earth, anytime access to any place on the moon. That's all great stuff. It also has costs. I keep looking for these things in life that are unmitigated goods. I haven't found one yet. Time is running out. The use of the L-points carries a delta v penalty in the variously several hundred meter per second range to use it effectively and it carries a transit time delay of a couple days on either side, so you have to carry consumables and stuff to make up for that and people are sitting around twiddling their thumbs and so whether or not the L-points are useful in our first stages of lunar return I kind of doubt. In the context of a more fully developed architecture, if you fast forward 20 years in the future and we've got a base on the moon and it's like McMurdo in Antarctica, then I can see a role for the L-points in that kind of scenario if, again, and mostly L-1 if that makes sense. But you probably didn't actually invite me here to discuss orbital mechanics. I mean, I can, but then I need a whiteboard or something. Yes, sir?

QUESTION: Mike, I mean, Kennedy has always been an operation center. At least that we have been considered to be, but we have an increasing number of new technology, patents, and inventions being generated here at Kennedy. Do you see yourself supportive of a part of basic research being performed here, especially as it is applicable to the next vehicle? I mean both in systems or basic technology that can be used by 2010 or 2011.

And this is, we'll be competing against traditionally research centers like Glenn and Ames and others.

GRIFFIN: Good question. I need to take care of all the centers. That is where NASA's capability is. It doesn't reside at headquarters. The research centers, of course, often, those that at research centers feel jealous of the operational role of centers like Kennedy, Marshall, Johnson, and others. I mean, I've seen this all of my working life. I feel that I need to enforce a certain amount of discipline and say that research centers do research by and large, operation centers operate by and large, design centers design and develop by and large. Nothing is binary. There is always stuff on the margin and there's questions that you can ask that you don't have the answers to that you go and seek that answers to and, of course, by definition that is research that are most appropriately done here. I'm not going to be on a search and destroy mission for any vestiges of research here at KSC, but at the same time I will not be supportive of a significant effort to increase R&D at an operations center because I don't think that you would like it if one of the research centers said, "You know, we think we should have a more significant role in operations." So, there is a utility to the concept of centers of excellence without trying to be ethnically pure. There is a utility to the concept of core competencies and if people, individual people, want to do different things, you know, let them sell their house and buy another one and move to where those things are being done. That's my answer. Sorry if it's not the one you really wanted. Yes, ma'am?

QUESTION: Sorry, I don't have a very technical question, but it is one that is on the mind of many. The future obviously is going to have a lot to do with money and those of us that are very new and those of us that have been out here for awhile are looking at, is your future goal to be able to process the next vehicle with fewer people?

GRIFFIN: Yes. We need to look, when you look at where we are spending our money and free as much of it as we can for new things that we would like to do we have, the only time we ever have an opportunity to control the number of people and the amount of infrastructure that is required to support a given piece of hardware, whether it's launch hardware or anything else, is on the design end. So, as we design the next generation of human systems we need to strive to minimize the number of people required to process it. Not so that all those people can be flushed out the door and take jobs at McDonalds, but so we at NASA can redeploy those people to other things that we also want to do. One way, a useful way of looking at our budget is to say that at current average labor rates averaged across the country and at a very high level, NASA's money will buy the service of 70,000 people per year and they can work on anything we ask them to work on, but it doesn't buy any more people than that. The more of them we have processing launch vehicles, the fewer of them can be involved with lunar surface operations in the future. It's just that simple. What we owe, what we take very seriously that we owe all of you as we look towards the next system and say, "You know, we want to design this so it doesn't take as many people to process it as does Shuttle." Ok. How do we transition people out? First of all, there will still be non-zero people processing the new system. So who moves over? And how so we transition other people who were processing

shuttles into doing other things that we still care about. And that's a serious challenge. We are trying to study lessons learned from the retirement of the Titan-IV program. I want to go back and have people look at what was done as we wound Saturn/Apollo down and into Shuttle. We want to do this as smartly as we can. It won't be done without pain and dislocation for many. It just won't. I said in the press conference I did a few minutes ago that I've been through this a couple of times myself. There was an occasion where a company, an entrepreneurial venture that I joined just flat ran out of money and shut its doors and I, along with everyone else, went out to look for a new job. Some years later when I was running a company that needed to be sold by the parent company in order to prevent bankruptcy of the latter, I did as I was asked. I found a buyer for the company, sold it, transitioned the management to the new guy, and was done. And that's not fun. I wouldn't characterize it a fun. You kind of have to, you enter a period where you need to watch out for yourself and you need to look for new opportunities. It's our job to make sure that for as many people as possible those opportunities are still with us here at NASA and I take that really seriously. Oh, I'm sorry, next I have a phone call. Yes?

Phone: Hello?

GRIFFIN: Hello, over to you.

Phone: I have been reading, are you there? Mike?

GRIFFIN: I'm here.

Phone: I've been reading that a lot of our aerospace industries are combining their resources to, like the smaller companies are offering their services as subcontractors to the larger companies like Lockheed and Boeing, and Boeing and Lockheed even working together to submit a proposal for CEV. It sounds like we aren't going to get a lot of varying proposals for this. Do you see this as a good thing or a bad thing?

GRIFFIN: I didn't know, I don't know what you just said about Boeing and Lockheed submitting a single proposal for CEV is true and I don't think it is. Boeing and Lockheed did just announce a joint venture United Launch Alliance under which they are combining their expendable launch vehicle fleets and offering one stop shopping for expendable launch vehicle capability up to a nominal 20 ton lift capacity. Obviously there are good, I feel like this is quite trite and I'm sorry, there are good things and bad things about that. We don't have currently in the United States today enough traffic to low earth orbit to sustain a multiplicity of providers. Boeing and Lockheed have recognized that and have taken on the task and of offering, again, a one stop shop for the government. That makes a lot of things easier. It does narrow the range of competitors that we have to choose from. There is no denying that. And that cause people to wonder whether we will get the most value for our money. I think it's too early to see how all that plays out. I don't have a profound or pithy conclusion for you. At NASA we'll be watching what goes on and we'll be looking at what we have to pay for launch service

and how responsive it is and we'll be trying to figure out the best path we can. I just don't have a real clean answer. Sorry.

Phone: That's ok. I appreciate you letting me ask. And also, how much of a political aspect will there be in the CEV program towards supporting our aerospace industry?

GRIFFIN: I'm not sure that I understand the import of that question. The CEV will go to an American aerospace systems provider and that's about all the politics I can entertain. We'll ultimately pick what we think is the best proposal and award it in that fashion as we normally do. If there's more politics than that then it's over my head, which, by the way, uncommon, but I can't cope with more than trying to pick the best proposal. That's hard enough.

Phone: Ok. Thank you

GRIFFIN: Sure. Yes, sir?

QUESTION:...

GRIFFIN: The question for those of you that might not have been able to hear it because the microphone did not seem to be working, was how do I see the role of the government industry team. I think I'll start at the top. It is obviously not the purpose of US tax payer dollars to support a burgeoning team of civil servants on the public payroll when the

engine which has generated the American economy in which we live today is clearly the engine of competition and capitalism. I don't think we have to apologize for our economy and our approach to that economy to anyone. It's the greatest economy that the world has ever seen. That said, for new difficult risky state-of-the-art frontier types of activities one can look in vain for a commercial or industrial competitor to supply the product or service. Companies don't stay in business by operating at the cutting edge. So, over the last hundred years in the United States has evolved the concept of federal center and federal laboratories and federally supported activities to do things on behalf of the American people that you simply can't contract for easily with industry. The ownership of those activities, the intellectual property associated with them, the responsibility for those activities then has to rest with the government. The industry teams can help. They can be suppliers. They can be part of it. They must be part of it, but the ownership has to be with the government because that's where the responsibility rests. I don't even like saying things like this, but if we lose another vehicle the person who will be in front of Congress will be me or another government badged person. So the role for the civil service team is to be the most expert possible customers we can be which means we have to do some work on our own. It can't all be sent out to industry or we rapidly lose our skill. I sense that we may have gone a little too far in the direction of skill loss and I want to make sure that it doesn't continue. Which is not to say that I intend to hire a bunch of new civil servants because I don't, but we need to pay close attention to the nature and kind of work that we ask of our civil service team so that we retain the capability to be knowledgeable, experienced, and intelligent buyers and operators. Returning to the moon, going to Mars will be a multigenerational activity.

Companies enter business. They go out of business. The ownership of the core mission has to be within the government. I was told I have another phone question so whoever is on the phone go ahead.

Phone: Doctor Griffin, good morning. You answered basically the question I was just going to ask if you were going to utilize.... And if Spaceship One and that sort of area and bring him on board because of some of the innovations with the Voyager and the around the world mission and all of the other things. I mean, he's done a lot of stuff on his own that, you know, I don't know if we can get any benefit from it, but is NASA even thinking of looking to some of the things he has done.

GRIFFIN: Well, I don't want to single out Bert or any other provider. Bert's one of many. He may be the most prominent, but he is one of many very clever, very creative entrepreneurial folks we have in this country and that goes to the best that I was just talking about in the American economy in terms of the dynamism that we have in this economy. I would parenthetically add that I can't envision dragging Bert into anything he doesn't want to be dragged into. I like him a lot but he definitely goes his own way and he should. And Bert did not choose to submit a proposal for the CEV competition and I can only judge the proposals that are submitted. Going forward there will be other opportunities for commercial, strictly commercial entrepreneurial firms to provide service to NASA and I personally want us to be as open to that as it is possible to do. I'll give you an example, the next significant RFP that will hit the streets is for, I think the budget line is Crew and Cargo Services for ISS, but if I don't have the budget line title right

please don't shoot me. The essence of the idea is automated cargo delivery to the Space Station to help offload Shuttle logistics carryover responsibilities. This is something where I think commercial entrepreneur firms could participate in. I absolutely hope they will. We're holding back on the RFP a little bit to make sure that it is structured in such a way that firms that are used to doing deals on a commercial basis can feel comfortable with NASA doing a deal on a commercial basis. So, I intend to open the input port as widely as I can, but people still have to show up. Another question?

QUESTION: Thanks for being here today.

GRIFFIN: Thank you for having me.

QUESTION: My father and others work at Johnson Space Center and say you can't build a new vehicle in under five years. If so, how will we, as a nation, be able to support manned space flight missions with no active manned launch system. And why don't we continue to replace and utilize a proven launch system, the STS?

GRIFFIN: If it takes more than five years, then it does. It will take what it takes. I would point out to you that when people didn't know how to do it, the Apollo command and service module system was designed and flown in less than six years. And when people didn't know how to do it, the lunar module followed along slightly behind, but at a similar pace. I personally have worked several Skunkworks-type programs, you know, small "s," small "w," and I know from personal experience that a lot can be done by a

dedicated team that wants to accomplish it. I think one of my roles here is to push back on the idea that it takes an infinite amount of time to get anything done. But, at the end, it takes what it takes. If there is a gap in human space flight because of either technically, technical or budgetary considerations, then there will be one. As I said at the outset of this conversation, one of my goals is to narrow that gap to the maximum extent that is possible. I won't narrow it beyond what is possible, obviously. The team won't do anything beyond what is possible. As to why we won't continue to fly the Shuttle, there are a variety of reasons. We would have a very large bill to recertify the fleet past 2010. We would rather put that money into new things. A key reason is that somebody has to decide when the retirement date should be, and this president has decided. He gets elected to make such decisions, and I noticed that last November he, in fact, was reelected. He is the top of the chain of command and the rest of us will follow orders. I'm following mine. The rest of us on the team will similarly execute those orders. That is what we'll do. The Congress gets the deciding vote. So far, they have not said no. So our task is, given those bounding directions, do the best that we can to implement those directions in the smartest possible way. Not to try to change those directions by flying past 2010, or doing less with the CEV than the president requested be done, and so on and so forth. Our task is to be as clever as we can, doing what we're told to do. Oh, we've got two.

QUESTION: I've got a question, Mike. It's related to the vast infrastructure that we have down here at Kennedy. You mentioned the budget gap and basically a cash flow problem to get everything accomplished at the same time. Kennedy Space Center has very good relationships with our state and local partners like other centers do, and they have funded

many projects over the years. They're quite eager to help NASA make a smooth transition from a Shuttle-based space program to a CEV-based space program. You have some experience with public/private partnerships at (unintelligible) and probably other places. What are your thoughts on how to best leverage these kind of non-traditional sources of funding for the large infrastructure changes and mods that we'll make?

GRIFFIN: That's a good question. My thoughts on that are not, frankly, not very well formed at the moment. It just hasn't made the top of the priority queue yet. But I've said in the past that if I bring any value to NASA, and many will actually debate that, but if I do, it is that I have been in a lot of places doing different things in various aspects of mostly the aerospace business, but a little foray now and then into other aspects of high tech. What that has left me with is an openness to different kinds of partnership arrangements and different kinds of deals. Now, partnership arrangements and deals require, at a minimum, two parties. Otherwise, we're just talking to ourselves. In my first five weeks here, those other parties haven't shown up. (TAPE ENDS) ...Know that I am open to such arrangements where I think it's beneficial to us and beneficial to them. A deal that doesn't benefit both sides won't last very long, so I'm not interested in things that just benefit NASA. So I'm open to those opportunities, have just not had time yet to engage in those sorts of things. Another question? Two more questions, sorry. Yes sir.

QUESTION: We have read some of the work by the planetary society that you were connected with last summer, the study that...it was very good and had a lot of good ideas on how the gap might be closed between the Shuttle retirement and a new vehicle. But

one of the things we noticed was that any potential vehicle that was mentioned would...would require ground infrastructure to support that vehicle that is not currently existing at the space center. And any such infrastructure would require a chain of events - - environmental impact studies, engineering studies, procurement cycles and so on that may take, you know, five years at the offset. So we're wondering if the, the infrastructures and the changes to things like launch pads, flame defectors, etc., is high on your list for, you know, immediately getting started with, in order to close that, that gap in supporting the launches.

GRIFFIN: Well, broadly speaking, you're asking if getting the infrastructure to match the, the flight architecture is important to me, and it sure is. And that's why, look, we have convened an exploration systems architecture study at Headquarters. I've got some of the best people I know participating in it and others critiquing it. It'll take several months and in fact, it won't probably have a hard finish, it will get into (unintelligible) finer detail. It's got, the team's got KSC representation and it may need more. At the conclusion of that, we'll be presenting to the executive branch and to Congress, our stakeholders, what it is we think we should do. We'll, we'll be doing as much peer review of that before we roll it out as we can, so we have a good approach. That approach will tell us what we need in the way of supporting infrastructure and what changes need to be made. One criteria for a good architecture is that we can get good things without wholesale looking at the sheet of paper and starting over. I want to adapt the infrastructure that we have here, rather than bulldoze it and start again. I want fewer rather than more environmental impact studies. I've been through those personally. You know, it didn't peg my fun meter. But if you're

asking me, you know, where we are right now and do we know what we want to do and what we want to change, I don't. You're going to have to wait, individuals are going to have to wait the same several months that the Congress and the executive branch will have to wait to see where we come out. The truth of the matter is that we're late getting to this. We needed to define those architectures and those plans sooner than we have done. I've made it a priority in my first few weeks in office to get about that, and we have a lot of good people working it. It needs some input and some backing from the administrator. And I recognize that. I have to drive it personally and I recognize that. I've been spending as much time as I can doing that as I possibly can, given all the other priorities, and I've put people that I trust deeply, that I would trust with my own life and my own family, involved. I've put people on it and involved with it that I've worked with, so that I have the best chance of getting an outcome that I think there is muster going forward. I can't do it any quicker than we're doing it. So we're just going to all have to be a little bit patient. I'm impatient too. I wanted it done yesterday. It's not. You know, I probably am the least patient person in the room. One of my bosses once remarked that one would have to add patience to Mike just to get him up to zero patience. I've remembered it because it was so apt. Sorry. One more.

QUESTION: Hi, Mike. I wondered if you could comment on your view of ISLU, or In (intelligible) Resource Utilization, for exploration or moving it from what might be an idea to something that's a core technology.

GRIFFIN: Well, it is a core technology. If there's two things that we must do in crafting an exploration architecture that has a future, it's to craft an architecture that provides lots of hooks and ?? for commercial participation, because once something is not a cutting-edge activity, it truly is best provided by competitive industry. And the other thing we absolutely must do is in utilizing -- in going to the Moon, returning to the Moon to stay, going to Mars -- we absolutely must plan on use of local resources at those sites and other sites, ?? asteroids and things like that. We can't haul everything with us that we want to take except for the first few years. So it's a key, core, must have, can't do without technology, as far as I'm concerned. I think they say we're done.

KENNEDY: I think we are. Mike, do you have any final words?.

GRIFFIN: No. Well, thanks for hosting me here. Thanks for being such a good audience, and for participating. I really appreciate it. I don't like doing monologues. Thanks.